

IN THE CLAIMS:

1-47. (Canceled)

48. (Currently amended) An isolated nucleic acid, wherein said isolated nucleic acid encodes a plant delta-6 desaturase comprising three histidine-rich boxes, and wherein ~~said plant delta-6 desaturase comprises~~ at least one of the first, second or third histidine-rich boxes is represented by the amino acid sequences as set forth in SEQ ID NO: 6, SEQ ID NO: 12 ~~or~~ and SEQ ID NO: 20, respectively.

49-50. (Canceled).

51. (Currently amended) A genetic construct comprising the isolated nucleic acid according to any one of claims ~~claim~~ 48 or 58-59.

52. (Original) A vector comprising the genetic construct according to claim 51.

53. (Original) A cell comprising the vector according to claim 52.

54. (Currently amended) A transformed plant comprising the nucleic acid according to any one of claims ~~claim~~ 48 or 58-59.

55. (Currently amended) A method of producing a plant with increased GLA comprising transforming a plant cell with a nucleic acid according to any one of claims ~~claim~~ 48 or 58-59 and regenerating said plant from said plant cell.

56. (Previously presented) A transformed plant comprising the genetic construct according to claim 51.

57. (Previously presented) A method of producing a plant with increased GLA comprising transforming a plant cell with the genetic construct according to claim 51 and regenerating said plant from said plant cell.

58. (Previously presented) An isolated nucleic acid molecule coding for a plant delta-6 desaturase, whereby said nucleic acid molecule hybridizes under stringency conditions to the complement of a polynucleotide molecule comprising the nucleotide sequence of SEQ ID NO: 4, and wherein said stringency conditions comprise hybridization to filter-bound DNA in 6X SSC, 1X Denharts solution, 0.05 % sodium pyrophosphate, 100µg/ml denaturated salmon sperm DNA at 60°C, and washing in 4X, 2X, and 1X SET at 60°C.

59. (Currently amended) An isolated nucleic acid molecule coding for a plant delta-6 desaturase, whereby said nucleic acid molecule hybridizes under stringency conditions to the complement of a polynucleotide molecule encoding a plant delta-6 desaturase which comprises ~~at least one of~~

SEQ ID NO: 6,

SEQ ID NO: 12, ~~or~~ and

SEQ ID NO: 20,

and wherein said stringency conditions comprise hybridization to filter-bound DNA in 6X SSC, 1X Denharts solution, 0.05 % sodium pyrophosphate, 100µg/ml denaturated salmon sperm DNA at 60°C, and washing in 4X, 2X, and 1X SET at 60°C.

60. (New) An isolated nucleic acid, wherein said isolated nucleic acid encodes a plant delta-6 desaturase comprising three histidine-rich boxes, and wherein said nucleic acid hybridizes under stringent conditions to the complement of polynucleotide molecules encoding the amino acid sequences as set forth in SEQ ID NO: 6, SEQ ID NO: 12 and SEQ ID NO: 20, respectively.